WHAT IS CLAIMED IS:

1. An integrated circuit comprising an improved conductor-insulator-conductor (CIC) sandwich, wherein the CIC sandwich comprises:

a first conducting layer;

a first insulating layer deposited over the first conducting layer, wherein the first insulating layer comprises a structure having a plurality of oxygen cites partially filled by a plurality of oxygen atoms, wherein the unfilled oxygen cites define a concentration of oxygen vacancies;

a second conducting layer deposited over the first insulating layer; and

an oxygen-rich interface layer interposed between the first insulating layer and the second conducting layer, wherein the oxygen-rich interface layer acts as a sink for absorbing oxygen vacancies that migrate from the first insulating layer so as to reduce the buildup of oxygen vacancies at the interface layer and so as to reduce the concentration of oxygen vacancies of the first insulating layer.

2. The integrated circuit of Claim 1, wherein the second conducting layer comprises a plurality of oxygen-rich regions that are distributed throughout the second conducting layer, said regions absorbing oxygen vacancies that migrate through the second conducting layer.

3. The integrated circuit of Claim 2, wherein the second conducting layer comprises a material selected from the group consisting of platinum (Pt), ruthenium (Ru), ruthenium oxide (RuO_x), iridium (Ir), iridium oxide (IrO_x), palladium (Pd), tungsten (W), tungsten nitride (WN), tantalum nitride (TaN), titanium nitride (TiN), and titanium oxygen nitride (TiON).

4. The integrated circuit of Claim 2, wherein the second conducting layer has a thickness between 100 Å and 2000 Å.

5. The integrated circuit of Claim 2, wherein the conducting layer is highly oxidized.

6. The integrated circuit of Claim 5, wherein the second conducting layer has a quantity of oxygen atoms greater than that which is required for stoichiometric stability.

7. The method of Claim 6, wherein the second conducting layer comprises a layer of IrO_x such that x is greater than 2.0 and less than 2.5.

8. The integrated circuit of Claim 2, wherein the first conducting layer comprises a material selected from the group consisting of conductively doped polysilicon, hemispherical grain (HSG) polysilicon, platinum (Pt), ruthenium (Ru), ruthenium oxide (RuO_x), iridium (Ir), iridium oxide (IrO_x), palladium (Pd), tungsten (W) tungsten nitride (WN_x), tantalum nitride (TaN), titanium nitride (TiN), and titanium oxygen nitride (TiON).

9. The integrated circuit of Claim 1, wherein the structure of the first insulating layer is a crystalline structure.